

PUBLIC ABSTRACT

Applicant (primary) name: Green Coal LLC

Applicant-s address: 3401 West End Ave. , Suite 500, Nashville, Tenn 37203
Street City State Zipcode

Team Members (if any): Robert Holcomb 3401 West End Ave. , Suite 500, Nashville, Tenn 37203

(listing represents only participants at time of application, not necessarily final team membership)

Name City State Zipcode

Paul Touchton 3401 West End Ave. , Suite 500, Nashville, Tenn 37203

Name City State Zipcode

Name City State Zipcode

(Use continuation sheet if needed.)

Proposal Title: Green Coal Treatment Plant.

Commercial Application: New Facilities Existing Facilities

Other, Specify: _____

Technology Type: Fossil Energy , Coal Processing

Estimated total cost of project:

(May not represent final negotiated costs.)

Total Estimated Cost: \$ 7,600,000

Estimated DOE Share: \$ 3,800,000

Estimated Private Share: \$ 3,800,000

PUBLIC ABSTRACT (cont-d)

Anticipated Project Site(s): Pearl Generating Station, Pearl, IL 62361
Location (city, county, etc.) State Zipcode

Austin, MN (Possible Alternative)
Location (city, county, etc.) State Zipcode

Location (city, county, etc.) State Zipcode

Type of coal to be used: High Sulfur Bituminous Coal; Past R&D utilized East Tennessee; Powder River Basin; Jasper, Al
Primary

Size or scale of project: 222 tons
Tons of coal/day input

Duration of proposed project: 24
(From date of award) (Months)

PRIMARY CONTACT:

For additional information, Paul Touchton
interested parties should contact: Name

Principal Investigator
Position

(615) 250-1626
Telephone Number

Green Coal LLC
Company

Ptouchton@demetersystems.com 3401 West End Ave. Suite 500
e-mail address Address

Nashville, TN 37203
City State Zipcode

Alternative Contact:

Name

Position

()
Telephone Number

Company

e-mail address

Address

City

State

Zipcode

PUBLIC ABSTRACT (cont=d)

Brief description of project:

Green Coal LLC, an operating company owned by Demeter Systems, LLC has developed a patented chemical that is directly applied to crushed coal in order to lower the emissions of pollutants created during the combustion and increase the efficiency of the combustion process. This new technology, called Inorganic Polymer Electret for Coal (IPE-CTM), utilizes naturally occurring ingredients such as sand, water, and alkali. These ingredients are blended to yield a solution that reduces harmful emissions of sulfur dioxide (SO₂), nitrous oxide (NO_x), carbon dioxide (CO₂), carbon monoxide (CO), Hydrocarbons (HC), and mercury (Hg). With this technology, coal fired power plants would not have to retrofit facilities in order to decrease emissions. Specifically, the installation of scrubbers, selective catalytic reduction (SCR) systems, and mercury removal systems could be avoided if the technology is proven viable. The IPE-CTM Process has the potential to work on all types of coal at costs significantly less than alternative technologies. However, the IPE-CTM Process is most economical with high sulfur coals (>1.68% sulfur). As a pre-combustion technology, the Green Coal process can be applied at locations other than the energy plant. Providing flexibility with respect to the type of company that could benefit from the IPE-CTM Process and, based on completed laboratory testing, at a lower cost for the same level of pollution reduction. In addition, although mercury emissions were not measured directly from the exhaust laboratory unit, a higher content of mercury in the ash from the treated coal suggests that the treated coal has potential for significant mercury reduction in flue gas exhaust. A market entry option for Green Coal LLC is to integrate the IPE-CTM Process into coal preparation plants based on a scalable module capable of meeting the requirements of a 50 MW power generating unit. By running modules in parallel, a Green Power Coal Treatment Plant can be designed to meet the requirements of any size coal power generating plant (e.g. 250 MW plant – 5 modules). Effectiveness and feasibility of the Green Coal's treatment technology and module design will be demonstrated at the Pearl Generating Station located in Pearl, IL. The term of the project as proposed is 24 months.